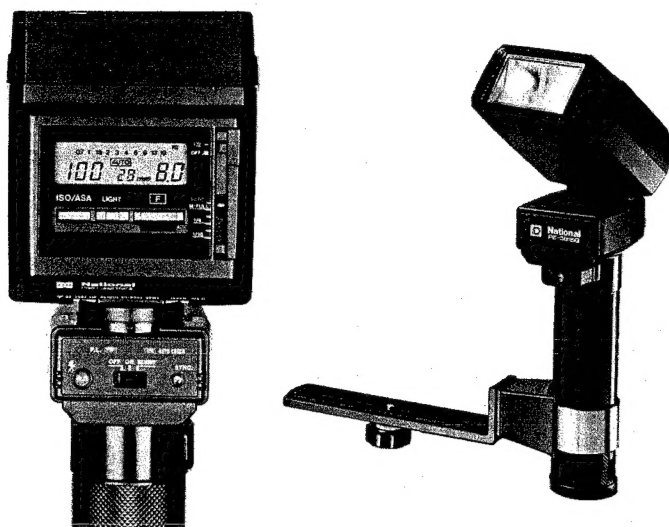


Service Manual

FLASH UNIT

PE-38ISG

Confidential



SPECIFICATIONS

● Guide number :

(ISO/ASA100)

Power control Lens coverage indicator	Full	■(1/2)	1/4	■(1/8)	1/16
28 mm	38	26	19	13	9.5
20 mm	22	15	11	7.7	5.5
135 mm	64	45	32	22	16

● Flash duration (approx.):

Auto	Manual				
	Full	1/2	1/4	1/8	1/16
1/25,000~1/800 sec.	1/800 sec.	1/1,000 sec.	1/1,800 sec.	1/4,000 sec.	1/7,500 sec.

● Automatic operating range (approx.):

(ISO/ASA100)

Lens coverage indicator Automatic F-stop	28 mm	20 mm	135 mm
F1.4	3.0~27 m	2.0~15 m	6.0~45 m
F2.0	2.0~19 m	1.5~11 m	4.0~32 m
F2.8	1.5~13 m	1.0~7.8 m	3.0~22 m
F4.0	1.0~9.5 m	0.7~5.5 m	2.0~16 m
F5.6	0.7~6.7 m	0.7~3.9 m	1.5~11 m
F8.0	0.7~4.7 m	0.7~2.7 m	1.0~8.0 m
F11	0.7~3.4 m	0.7~2.0 m	0.7~5.8 m
F16	0.7~2.3 m	0.7~1.3 m	0.7~4.0 m

● Sensor measuring angle (approx.): 20°

● Recycling time (approx.):

Power source	Auto	Manual				
		Full	■(1/2)	1/4	■(1/8)	1/16
Four 1.5 V size AA Alkaline batteries	0.2~10 sec.	10 sec.	6.5 sec.	3.0 sec.	2.0 sec.	0.5 sec.
For size AA Ni-Cd batteries	0.2~5.5 sec.	5.5 sec.	3.0 sec.	1.5 sec.	1.0 sec.	0.3 sec.

● Number of flashes (approx.):

Power source	Auto	Manual(Full)
Four 1.5 V size AA Alkaline batteries	120~700	120
Four size AA Ni-Cd batteries	50~250	50

● Angle of coverage and GN:

Lens coverage indicator	Angle of coverage (with 35 mm camera)	Guide number	
		ISO/ASA100	ISO/ASA400
28 mm	28 mm lens cover (Vertical:53°,Horizontal:70°)	38	76
20 mm	20 mm lens cover (Vertical:69°,Horizontal:87°)	22	44
135 mm	135 mm lens cover (Vertical:17°,Horizontal:23°)	64	128

● Bounce angle:

Vertical: 0°~90° (click stops at 0°, 70° and 90°)
Horizontal: 180°~0°~135° (click stops at 180°, 135°, 90°, 70°, 0°, 70°, 90° and 135°)

● Power source:

Six 1.5V size AA Alkaline or Ni-Cd batteries.

● Color temperature:

Ideal for color or black & white film.

● Size and weight (without batteries):

245 mm (H) × 90 mm (W) × 107 mm (D), 720 g (with bracket)

● Flash unit set:

Model PE-38ISG, Clamp ring, Clamp, Bracket, 30 cm synchro cord, 20 mm wide-angle diffuser, 135 mm tele panel.

● Optional accessories:

Remote Sensor Type 5 (PW-15S), Slave Unit (PI-3, PW-5), 3 m Synchro Cord (PP-SC30A), Charging Set (PW-1103), Macro Flash Sensor (PW-50M), 6×6 Bracket (PP-BR66A), Sensor Adaptor Type B (PP-SS1B).

Matsushita Electric Trading Co., Ltd.
P.O.Box 288, Central Osaka, Japan

I. Disassembly and Reassembly Instructions

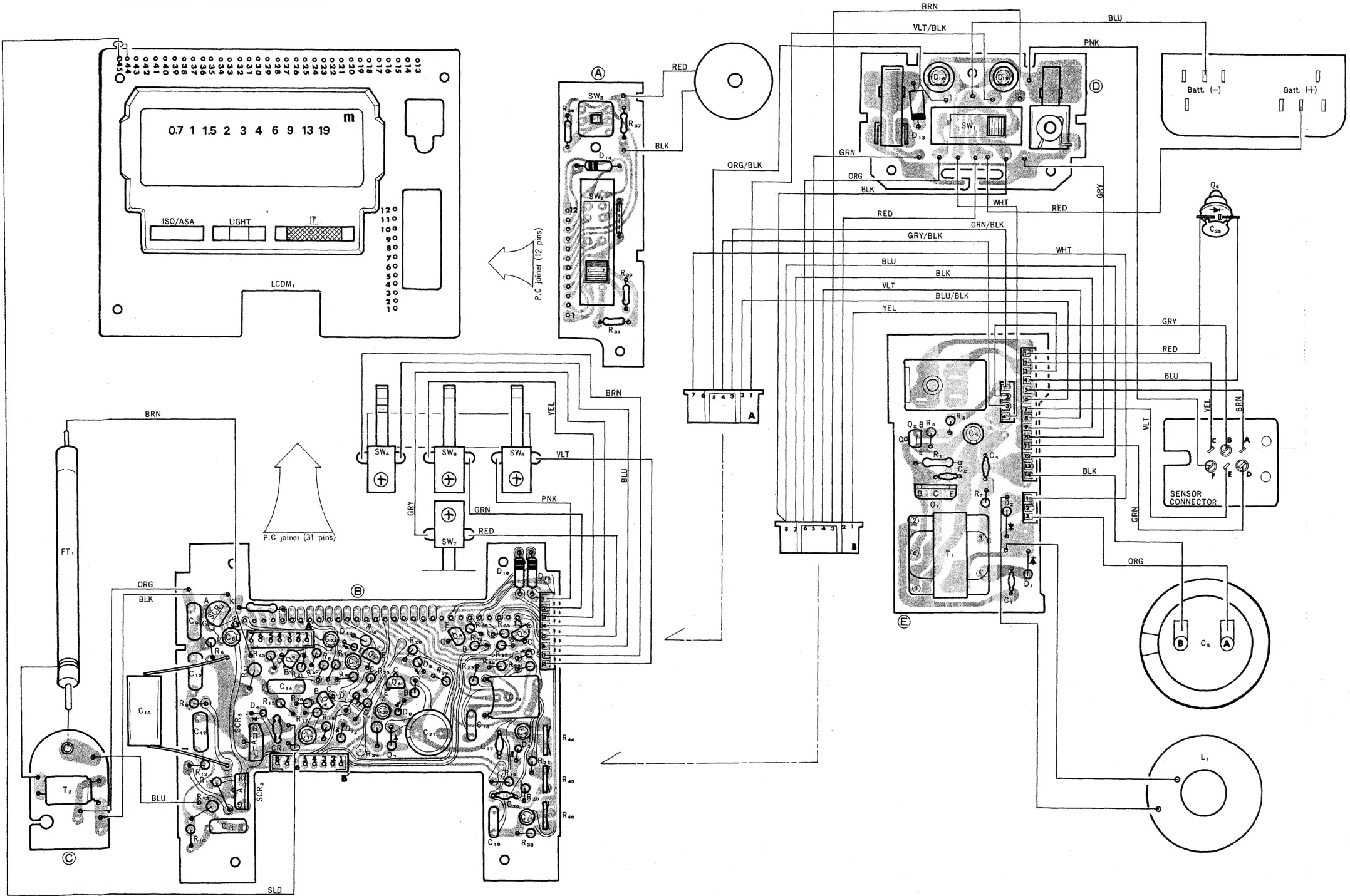
Disassembly

1. Remove the battery compartment lid (52) and take the battery holder (53) out of body.
2. Remove two screws (10) of the front case (3) and separate the front case from flash head.
3. Remove two screws (11) of the body case UB (2).
4. Separate the body case UA (1) from body case UB.
Note: As the main capacitor (C_5) and the MD capacitor (C_{13}) store high voltage, it is vital to discharge these capacitors carefully using a soldering iron or other tool.
(Discharge Point is shown in Section 2, "Circuit Board and Wiring Connection".)
5. After tearing two adjustment hole plates (5) from the body case UB, pull out the bounce axle (7).
6. Separate body case UB from the bounce case. (When separating the body case UB, be careful not to lose the two steel balls (13) and the two springs (14) inserted in the bounce cases.)
7. Remove two screws (30) on the bounce axle case A (19).
8. Separate bounce axle case B (20) from the bounce axle case A.
9. Remove four screws (34) of the rotating plate H (23), and remove this plate and bounce axle case A from the body.
10. Remove four screws (32) at the side of main body.
11. Remove two screws (33) at the bottom of main body. (on the body case LB (18) side)
12. Separate body case LB from body case LA (17).

Reassembly

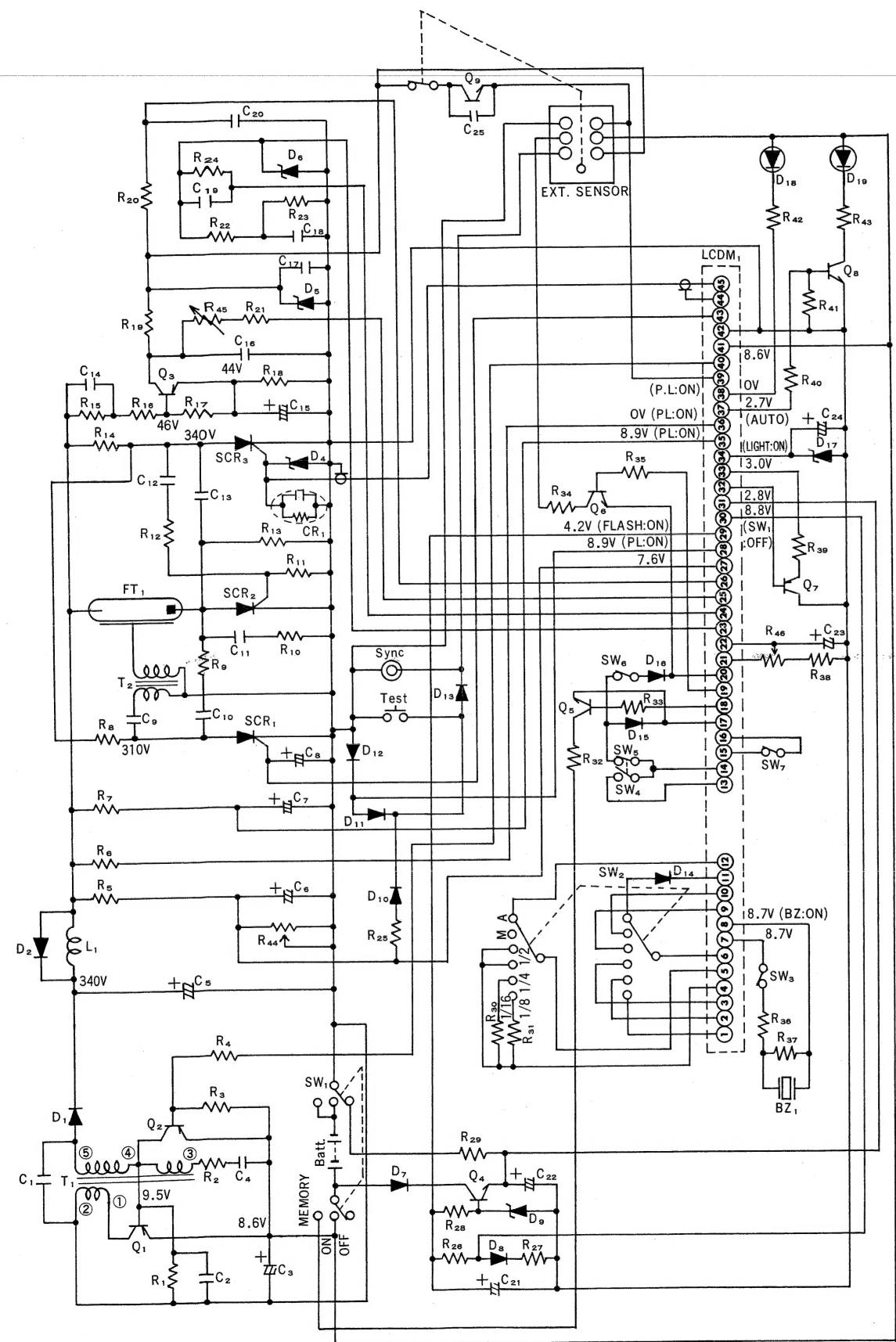
1. Set the open flash button (26) and the connector spring (28) into the body case LA.
2. After setting the switch plate (22) to the slide switch (SW_1) soldered on the PC board D, set the PC board D into body case LA and fix it with three screws ($2\phi \times 6$).
3. Set the PC board E, sensor connector (59) and the battery terminal fixture plate (42) into the body case LA.
4. Adhere the main capacitor and inductor (L_1) to the body case LA.
5. After setting the photo-sensor (Q_9) into the body case LB, join the body case LB to LA and fix them with six screws ($2\phi \times 5$, $2\phi \times 6$).
6. Set the click stopper (27) and spring (29) on the body case LA.
7. Fit the rotating plate H to the bounce axle case A, and set them on the main body.
8. Tighten four screws to the rotating plate H.
9. Join the bounce axle case B to A, and fix them with two screws ($2\phi \times 8$).
10. After setting the springs and steel balls into the bounce axle case, insert them to the body case UB.
11. Insert the bounce axle to the hole of body base UB and adhere the axle.
12. Join the body case UA to body case UB, and fix them with two screws ($2\phi \times 22$).
13. Set the front case and tighten two screws ($2\phi \times 8$) to it.
14. Stick the adjustment hole plates.
15. Insert the battery holder into the battery compartment and slide the cover downward.

2. Circuit Board and Wiring Connection



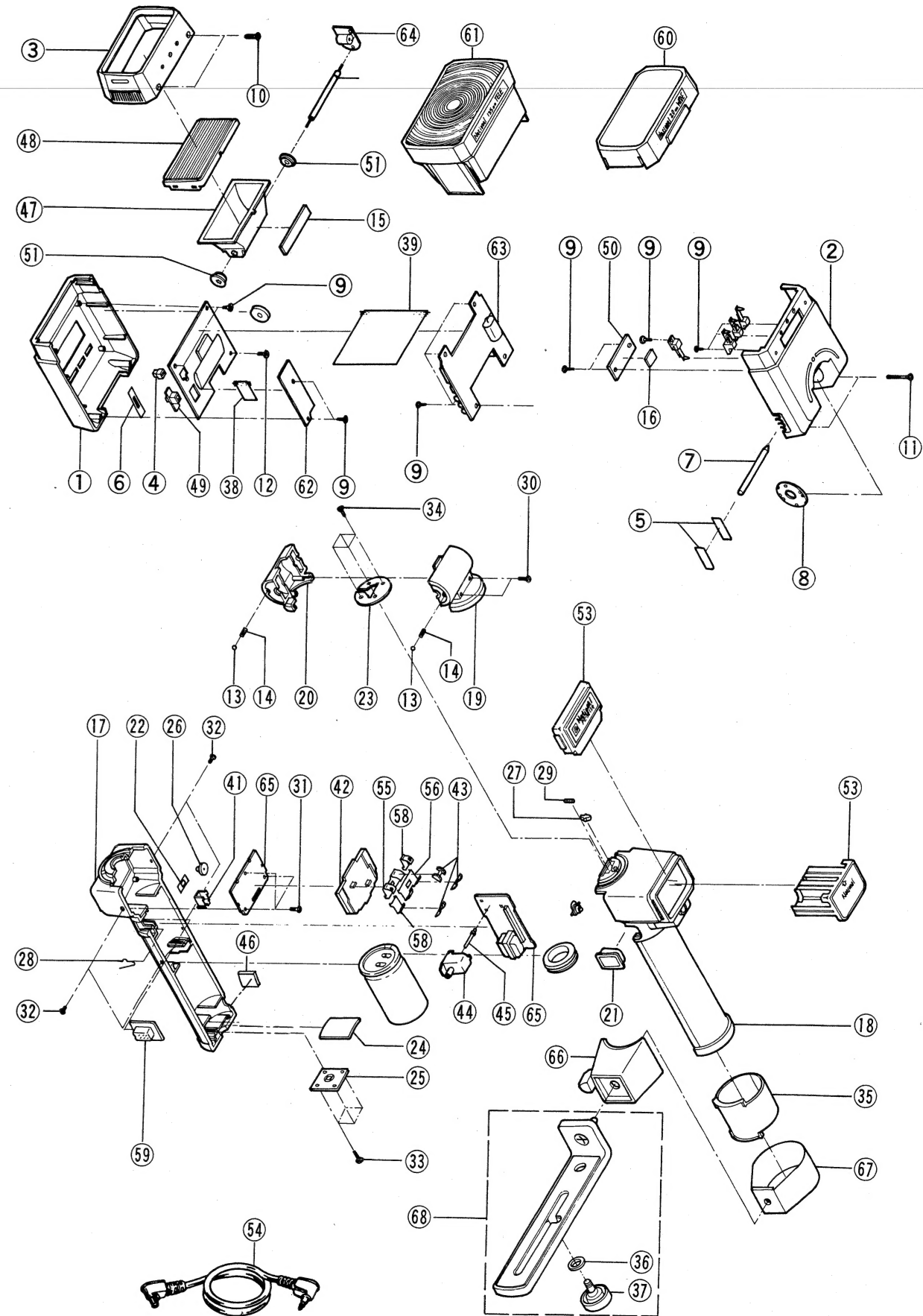
R _{1, 17, 40}	10KΩ $\frac{1}{4}$ W	R _{42, 43}	680Ω $\frac{1}{4}$ W
R _{2, 10}	100KΩ $\frac{1}{4}$ W	R _{44, 46}	100KΩ VR
R _{3, 33, 35, 41}	100KΩ $\frac{1}{4}$ W	R ₄₅	50KΩ VR
R ₄	4.7KΩ $\frac{1}{4}$ W	C ₁	300PF 500
R ₅	2.2MΩ $\frac{1}{4}$ W	C _{2, 4}	0.1μF12
R ₆	3.3MΩ $\frac{1}{4}$ W	C ₃	220μF10
R _{7, 8, 16}	1.2MΩ $\frac{1}{4}$ W	C ₅	1600μF350
R ₉	33Ω $\frac{1}{4}$ W	C _{6, 7}	1μF16
R ₁₁	22Ω $\frac{1}{4}$ W	C _{8, 23}	3.3μF50
R _{12, 25}	1KΩ $\frac{1}{4}$ W	C _{9, 12, 14}	0.047μF350
R ₁₃	5.6KΩ 1 W	C ₁₀	0.033μF350
R ₁₄	10KΩ 2 W	C ₁₁	0.068μF350
R ₁₅	33KΩ $\frac{1}{4}$ W	C ₁₃	3.3μF350
R ₁₈	180KΩ $\frac{1}{4}$ W	C ₁₅	4.7μF50
R _{19, 20}	220Ω $\frac{1}{4}$ W	C ₁₆	0.047μF50
R ₂₁	39KΩ $\frac{1}{4}$ W	C _{17, 20}	0.05μF12
R ₂₂	68Ω $\frac{1}{4}$ W	C ₁₈	0.056μF50
R ₂₃	470KΩ $\frac{1}{4}$ W	C ₁₉	1μF50
R ₂₄	47KΩ $\frac{1}{4}$ W	C ₂₁	1000μF10
R ₂₆	8.2KΩ $\frac{1}{4}$ W 1 %	C _{22, 24}	10μF16
R ₂₇	1KΩ $\frac{1}{4}$ W 1 %	C ₂₅	200PF500
R ₂₈	2KΩ $\frac{1}{4}$ W	CR ₁	680Ω/3300PF
R ₂₉	47Ω $\frac{1}{2}$ W	D ₁	S 1R-150
R ₃₀	3.3KΩ $\frac{1}{8}$ W	D _{2, 13}	10D-8
R ₃₁	27KΩ $\frac{1}{8}$ W	D _{4, 6}	MZ-303
R _{32, 34}	15KΩ $\frac{1}{4}$ W	D ₅	MZ-306
R ₃₆	560Ω $\frac{1}{8}$ W	D ₇	11DQ-02
R ₃₇	1KΩ $\frac{1}{8}$ W	D _{8, 14, 15, 16}	20A99
R ₃₈	56KΩ $\frac{1}{4}$ W	D ₉	MZ-304
R ₃₉	18Ω 1 W	D ₁₀	MA-150
R _{42, 43}	680Ω $\frac{1}{4}$ W	D _{11, 12}	10D-1
R _{44, 46}	100KΩ VR	D ₁₇	RD3.3EB ₁
R ₄₅	50KΩ VR	D ₁₈	LN29RPP
C ₁	300PF 500	D ₁₉	LN39GPP
C _{2, 4}	0.1μF12	Q ₁	2SB936A
C ₃	220μF10	Q _{2, 3, 7}	2SA1115
C ₅	1600μF350		
C _{6, 7}	1μF16		
C _{8, 23}	3.3μF50		
C _{9, 12, 14}	0.047μF350		
C ₁₀	0.033μF350		
C ₁₁	0.068μF350		
C ₁₃	3.3μF350		
C ₁₅	4.7μF50		
C ₁₆	0.047μF50		
C _{17, 20}	0.05μF12		
C ₁₈	0.056μF50		
C ₁₉	1μF50		
C ₂₁	1000μF10		
C _{22, 24}	10μF16		
C ₂₅	200PF500		
Q _{4, 5, 6, 8}	2SC2603		
Q ₉	PN-123S		
SCR ₁	CR02AM-8		
SCR ₂	CR3JM-8		
SCR ₃	CR3CM-8		
T ₁	1938S		
T ₂	SN-900		
L ₁	321L ₁		
LCDM ₁	IM-904		
FT ₁	D-4040BL		
BZ ₁	PKM35-4A0		
SW ₁	SKM24-045P		
SW ₂	SKM26-045P		
SW ₃	PS135A22S		
SW _{4, 7}	MSW-1425		
SW _{5, 6}	MSW-1424		

3. Schematic Diagram



Note: DC voltage measurements are taken with Digital Tester from (—) terminal of battery.
(Input voltage: 9V, SW1: ON, SW2: M-FULL)

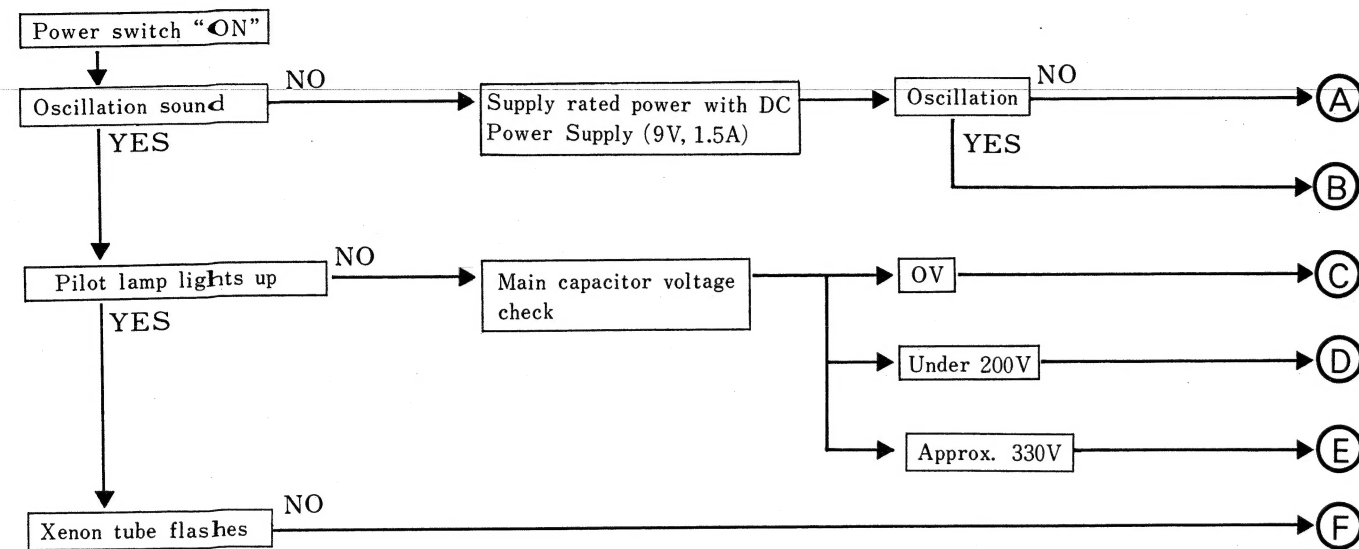
4. Exploded View



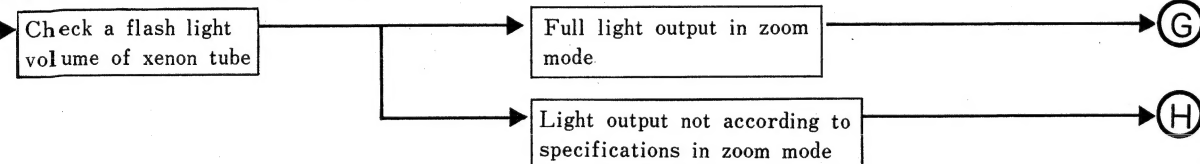
5. Trouble Shooting Guide

Check the flash unit with fresh batteries loaded, in the following manner:

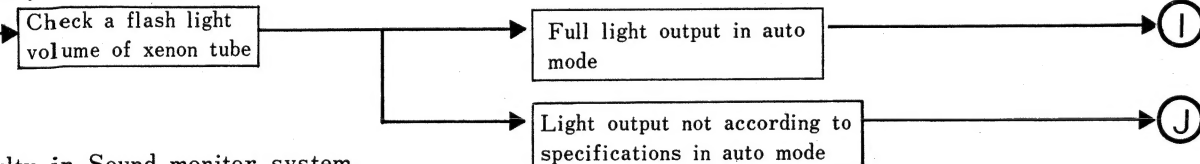
[1] Difficulty in Manual (FULL) operation



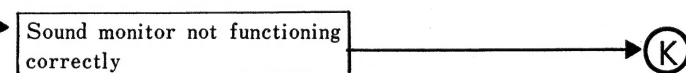
[2] Difficulty in Zoom ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$) operation



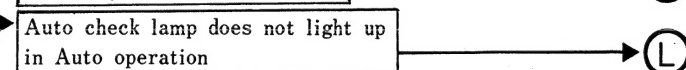
[3] Difficulty in Auto operation



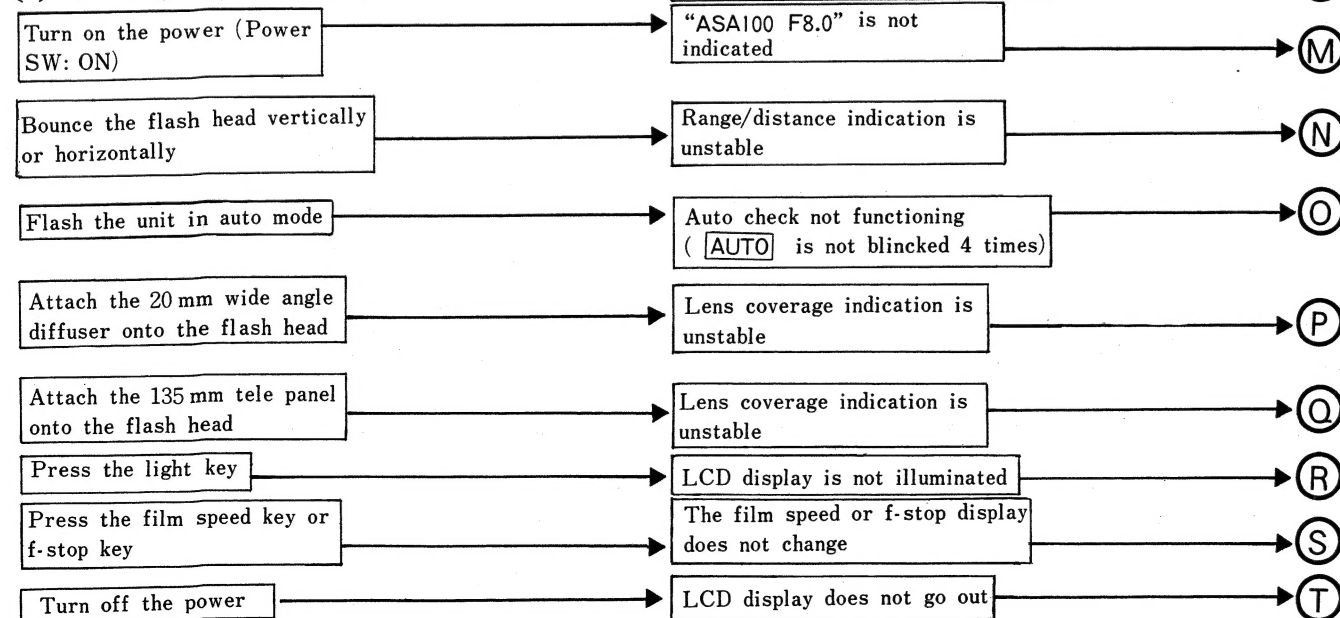
[4] Difficulty in Sound monitor system



[5] Difficulty in Auto check lamp



[6] Difficulty in LCD display



TROUBLE SHOOTING DATA CHART.

	ACTION	INDICATION	CAUSE
A	Use DC power supply, and check indication of the needle on the ammeter	Needle does not swing	Battery terminals (broken wire or desoldered)
		Needle swings a little	Transistor Q ₂ (shorted) Transformer T ₁ (opened)
		Needle swings beyond the scale	Transistor Q ₁ (shorted)
B	Check battery holder		Battery holder
C	Check diode D ₂		Diode D ₂ (opened)
D	Check main capacitor C ₅		Capacitor C ₅ (leaked)
	Check resistors	Heat is generated at R ₁₃ Heat is generated at R ₁₄	Capacitor C ₁₃ (shorted) SCR SCR ₃ (shorted)
E	Check voltage at pin 38 of LCDM ₁	OV	LED D ₁₈ (opened or shorted) PC joiner (31 pins) (desoldered)
		Approx. 5V	LCD module LCDM ₁ Vari. resistor R ₄₄
F	Make short in a moment between ①—⑫ terminals of SCR ₁	No flash (Voltage across C ₉ : OV)	Capacitor C ₉ (opened) SCR SCR ₁ (shorted) Trigger coil T ₂ (opened)
		No flash (Voltage across C ₉ : approx. 300V)	Trigger coil T ₂ (opened) Xenon tube FT ₁
		Flash works (Voltage measurements of LCDM ₁ — pin 36: 0.6V, pin 28: 9V and pin 35: 9V)	SCR SCR ₁ LCD module LCDM ₁
		Flash works (The voltage of LCDM ₁ is not the same as shown above)	LCD module LCDM ₁
G	Check switch SW ₂		A/M switch SW ₂
	Check gate signal of SCR ₃ with the synchro scope	Signal is not applied	Transistor Q ₃ Diode D ₅₋₆ Capacitor C _{16, 17, 20} , LCD module LCDM ₁
		Signal is applied	SCR SCR ₃ (opened) Capacitor C ₁₃ SCR SCR ₂ (shorted)
H	Check flashed light volume	Volume does not change by turning R ₄₅	Vari. resistor R ₄₅
		Volume level is not within the provided value	Switch SW ₂ LCD module LCDM ₁
I	Check switch SW ₂		A/M switch SW ₂

	ACTION	INDICATION	CAUSE
I	Check gate signal of SCR ₃ with the synchro scope	Signal is not applied	Photo-transistor Q ₉ (opened)
J	Check flashed light volume	Volume does not change according to the subject	Photo-transistor Q ₉ (shorted) LCD module LCDM ₁
		Level is not within the provided value	Vari. resistor R ₄₆ Photo-transistor Q ₉
K	Check signal at pin 8 of LCDM ₁ with the synchro scope	Signal (Frequency: 4kHz) is put out	Push switch SW ₃ Buzzer BZ ₁
		Signal shown above is not put out	LCD module LCDM ₁
L	Check voltage at pin 37 of LCDM ₁	Voltage (approx. 3V) is generated in Automatic flashing	Transistor Q ₈ LED D ₁₉
		OV	LCD module LCDM ₁
M	Check battery voltage	Under 4V	Consumption of batteries
	Turn the power switch "ON" and "OFF" several times	LCD display is anstable "ASA100 F8.0" is not indicated	Power switch SW ₁ LCD module LCDM ₁
N		Range/distance is not displayed correctly in accordance with bouncing the head	Leaf switch SW ₇ (defective contact)
O		Auto circuit is functioning correctly	Zener diode D ₆
P		"20mm" is not displayed	Leaf switch SW ₆ (change shape) Diode D ₁₆
Q		Error indication (---) is displayed	Leaf switch SW ₄ (defective contact)
		F-stop indicates the f-stop which is closed down 4 steps	Leaf switch SW _{5,6} (change shape) Diode D ₁₅
R	Check voltage at pin 33 of LCDM ₁	Approx. 3V	LCD module LCDM ₁ (lamp) Transistor Q ₇ (opened)
		OV	LCD module LCDM ₁
S			LCD module LCDM ₁
T			LCD module LCDM ₁ Power switch SW ₁

6. Adjustment

1. Adjustment of the Voltage for Pilot Lamp Lighting

(1)Supplies Required

- Regulated D.C power supply
- Insulated driver
- Disital tester or D.C volt meter
- Battery adaptor

(2)How to Adjust

1. Remove the front case.
2. Supply rated power (9V,1.5A) with D.C power supply.
3. To check the main capacitor (C₅) voltage, touch the long-pointed positive meter pobe against the (+) terminal of xenon tube (FT₁) and touch the negative probe against.
4. Turn the variable resistor (R₄₄) so that the pilot lamp is lighted when the valtage across main capacitor (C₅) reaches the following potential.

The Voltage for P.L Lighting : 265V±5V

Notes:

1. Whenever the variable resistor is turned, the insulated driver should be used.
2. It should be confirmed that the P.L is lighted at 260V to 270V after adjusting.
3. It is impossible to adjust the variable resistor when the voltage is increased too rapid to confirm the P.L lighting. In this case, if the output voltage of D.C power supply is set to a little less than the voltage related above (9V) , it will become more easy to adjust.

2. Adjustment of Automatic F-stop Settings

(1)Supplies Required

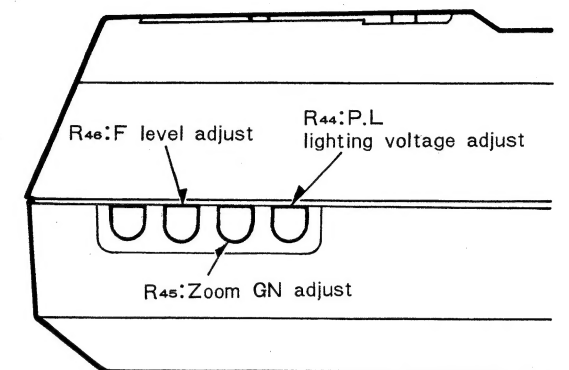
- Flash light volume meter
- Synchro cord
- Regulated D.C power supply or fresh batteries
- Insulated driver
- Reflection paper
- Fixed stand for flash unit
- Battery adaptor

(2)How to Adjust

1. Install the Flash light volume meter and the Flash unit to be adjusted, opposite to the reflection paper, and connect the instruments as shown in Fig-1.
2. Set the display of the flash unit to "ASA100 28mm AUTO F8.0 and press the light measuring button after passing more than 30 seconds from the point of P.L lighting.
3. Turn the variable resistor (R₄₆) so that the needle of the Flash light volume meter can be read within the provided value.

Provided F-stop value : F8.0±0.3EV (F7.2~F9.0)

Fig-1



4. After adjusting, change the F-stop indication in order and confirm that the needle of Flash light volume meter can be read within the allowable range.

Automatic F-stop settings of the F-stop indicator	Standard F-stop value	Allowable range for the scale of Flash light volume meter
F1.4	$F1.4 \pm 1 \text{ EV}$	F1.0~F2.0
F2.0	$F2.0 \pm 1 \text{ EV}$	F1.4~F2.8
F2.8	$F2.8 \pm 1 \text{ EV}$	F2.0~F4.0
F4.0	$F4.0 \pm 1 \text{ EV}$	F2.8~F5.6
F5.6	$F5.6 \pm 1 \text{ EV}$	F4.0~F8.0
F8.0	$F8.0 \pm 1 \text{ EV}$	F5.6~F11
F11	$F11 \pm 1 \text{ EV}$	F8.0~F16
F16	$F16 \pm 1 \text{ EV}$	F11~F22

Notes:

4. Keep pressing the light measuring button of Flash light volume meter, while measuring.

3. Adjustment of Zoom G.N Settings

(1)Supplies Required

Same supplies as related before

(2)How to Adjust

1. Install these instruments as related in Adjustment of Automatic F-stop Settings.
2. Set the auto/manual selector switch to "MANUAL $\frac{1}{4}$ " position, and press the light measuring button after passing more than 30 seconds from the point of P.L lighting. (The LCD display is "ASA100 28mm \boxed{M} F8.0")
3. Turn the variable resistor (R_{45}) so that the needle of the Flash light volume meter can be read within the provided value.

Provided G.N value: $F9.5 \pm 0.5 \text{ EV}$ (F8.0~F11) at 2 meters

4. After adjusting, change the A/M selector switch in order and confirm that the needle of Flash light volume meter can be read within the allowable range.

Zoom settings of the Flash unit to be adjusted	Standard F-stop value (at 2meters)	Allowable range for the scale of Flash light volume meter
1/16 (G.N9.5)	$F4.75 \pm 1 \text{ EV}$	F3.4~F6.7
1/8 (G.N13)	$F6.5 \pm 1 \text{ EV}$	F4.6~F9.2
1/4 (G.N19)	$F9.5 \pm 1 \text{ EV}$	F6.7~F13
1/2 (G.N26)	$F13 \pm 1 \text{ EV}$	F9.2~F18.3

7. Checking After Repairs

Check the flash unit with fresh batteries loaded and synchro-cord connected, in the following manner :

1. Switch action

Turn the power switch "ON" and "OFF" three times, and check to see if the unit is activated and stopped accordingly.

● Flash stop device

After the P.L lighting, turn off the power switch, and check to see if the P.L and the LCD display turn off.

● Memory circuitly

Turn the power switch to "MEMORY", and return it to "ON", and the previous information should be displayed on the LCD panel. (This check should be done except the initial display "ASA100 F8.0".)

2. LCD display

Check if the LCD display of the flash unit is fulfilled the items shown below.

ITEM	OPERATION	LCD DISPLAY
Initial display	Turn on the power.	ASA100 F8.0 (Other indications are depend on each setting position)
F-stop	Press the F-stop key	F1.4 to F16 in 8 steps (at ASA100)
Film speed (ISO/ASA)	Press the film speed key.	ASA25 to ASA800 in 16 steps (changes by a $\frac{1}{3}$ step)
Lens coverage	Standard	28 mm
	Attach the 20 mm wide-angle diffuser	20 mm
	Attach the 135 mm tele panel	135 mm
Auto/manual mode	Set the A/M selector switch.	Code address Auto : AUTO Manual : M
Range/distance		◀;■;▶ Auto: Bar-graph Manual: Individual squares In accordance with the film speed, F-stop and/or lens coverage settings, the automatic operating range/flash-to-subject distance in manual is displayed. (Automatic operating range is not displayed in bounce and/or macro flashing.)

ITEM	OPERATION	LCD DISPLAY
Macro	Mount the optional macro flash sensor (PW-50M), combined with the optional remote sensor type 5 (PW-15S).	The f-stop on the LCD panel will indicate the f-stop which is closed down 4 steps.
Light	Press the light key.	LCD panel is illuminated, and it will be turned out automatically after approx. 20 seconds.
Auto check	Flash the unit at AUTO.	The auto mode indicator "AUTO" blink 4 times
Automatic energy saving system	Don't fire the flash and power remains on without any operation for approx. 5 minutes.	After blinking the LCD display and P.L for approx. 10 seconds, the LCD indicates "OFF". (Press any of three keys and the memory circuit restores the previous informations on the LCD panel.)

3. Flashing

Turn the power on. (A/M selector switch: M·FULL)

When the P.L lights up, let the unit flash with the synchro-cord, and when the P.L lights up the next time, let it flash again by the open flash button.

Count the time before P.L lights up again.

If it is approx. 10 seconds, the unit is normal. (With Alkaline batteries)

4. Sound monitor system

Set the sound monitor switch at "ON" position by pushing in, check the items shown below.

● Completion of charging

When the P.L lights up, the beeper should sound intermittently pi, pi, pi, --- in auto mode or pipi, pipi, pipi, --- in manual mode.

● Auto check

If light is adequate for correct exposure, the continuous beep sound occurs for approx. 2 seconds, accompanied by the blinking of auto mode indication "AUTO".

● Warning of automatic energy saving system

To warn that charging is automatically stopped, the intermittent beep sound occurs for approx. 10 seconds, accompanied by the blinking of LCD panel and P.L.

5. Adjustment and measurement of automatic F-stop and zoom G.N settings

Let the unit flash at 2 meters at an interval of 30 seconds according to the operating instructions of Flash light volume meter.

Adjust the light output so that the specified F-stop and G.N is fulfilled.

If it is in the allowable range, the unit is normal.

6. Automatic energy saving system

If you do not fire the flash and power remains on without any operation for approx. 5 minutes the charging cycle should automatically stop to conserve battery life.

But the normal recycling cycle should start by pressing any of three keys.

8. Replacement Parts List & Initial Guidance Parts Recommendation List

Model No. PE-38ISG

Notes: 1. Be sure to make your orders of replacement parts according to this list.

2. "○" in "Remarks" column indicates new parts.

3. I.G.P.Q't'y : Projected Sales Quantity 1,000 Units.

PE-38ISG

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks	I.G.P. Q't'y
MECHANICAL PARTS					
1	SS092-98	Body case (UA) ass'y	1	○ with LCD plate	5
2	SS092-95	Case (UB), body	1	○	5
3	SS009-45	Case, front	1	○	5
4	SS035-64	Button, push switch	1	○	5
5	SS227-18	Plate, adjustment hole	2	○	10
6	SS227-19	Plate, switch cover	1	○	1
7	SS225-20	Axle, bounce	1		1
8	SS112-89	Plate (V), rotating	1		1
9	SG022-69	Minuteness screw, pan head ⊕, 2φ×6Br *	14	○	1
10	SG026-01	Screw, oval head tapping ⊕, 2φ×8Br	2		1
11	SG032-01	Screw, pan head tapping ⊕, 2φ×22Br	2		1
12	SG006-03	Screw, bind tapping ⊕, 2φ×5Ni	1		1
13	SG070-04	Steel ball 3.2φ	2		5
14	SS164-14	Spring (A)	2		5
15	SS024-22	Rubber (A)	1	○	1
16	SS024-23	Rubber (B)	1	○	1
17	SS093-07	Body case (LA) ass'y	1	○ with rear plate	5
18	SS093-08	Body case (LB) ass'y	1	○ with filter, cover	5
19	SS013-15	Case (A), bounce axle	1		5
20	SS013-16	Case (B), bounce axle	1		5
21	SS017-35	Cap, connector	1		5
22	SS206-27	Plate, switch	1		1
23	SS112-90	Plate (H), rotating	1		1
24	SS225-21	Plate, screw stopper	1		1
25	SS180-09	Plate, tripod screw	1		1
26	SS004-23	Button, open flash	1		5
27	SS178-27	Stopper, click	1		1
28	SS110-52	Spring, connector	1		1
29	SS164-35	Spring	1		1
30	SG022-31	Screw, pan head tapping ⊕, 2φ×8Br	2		1
31	SG022-24	Screw, pan head tapping ⊕, 2φ×6Ni	3		1
32	SG022-56	Minuteness screw, pan head ⊕, 2φ×5Br	4		1
33	SG000-51	Minuteness screw, pan head ⊕, 2φ×6Br	4		1
34	SG025-04	Screw, flat head tapping ⊕, 2φ×6Br	4		1
35	SS035-43	Spacer, band	1		5
36	SS023-24	Washer, tripod screw	1		5
37	SS160-07	Screw, tripod	1		5
38	SG800-08	PC joiner 12.5mm 12 pins	1		1
39	SG800-09	PC joiner 62.5mm 31 pins	1		1
40	SS020-57	Holder, LED	2		1
41	SS203-20	Jack base ass'y	1	with spring	1
42	SS027-32	Plate, battery terminal fixture	1		1
43	SS017-31	Guard, battery terminal	3		1
44	SS035-40	Cover, sensor terminal	1		1
45	SS035-41	Bar, sensor switching	1		1
46	SS227-22	Plate, cover	1	○	5
FUNCTION PARTS					
47	SS003-63	Reflector	1		5
48	SS055-40	Diffuser	1		5

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks	I.G.P. Qt'y
49	SS058-06	Knob, switch	1	○	5
50	SS411-36	Plate, switch support	1	○	1
51	SS011-42	Bushing, xenon tube	2		5
52	SS037-44	Lid, battery compartment	1	○ with front plate	5
53	SS027-36	Battery holder ass'y	1	○ with terminals, plate adjusters, screws	10
54	SS700-13	Synchro cord	1		1
55	SS209-42	Terminal (C-A), battery	1		10
56	SS209-43	Terminal (C-B), battery	1		10
57	SS209-40	Terminal (+), battery	1		10
58	SS209-41	Terminal (-), battery	1		10
59	SS012-58	Connector, sensor	1	○	5
60	SS055-79	Wide-angle diffuser ass'y	1	○ with panel cover	5
61	SS055-80	Tele panel ass'y	1	○ with hood case	5
RESISTOR					
R1, 17, 40	SC007-82	Resistor, carbon 10KΩ ¼W	3		1
R2, 10	SC007-54	Resistor, carbon 100Ω ¼W	2		1
R3, 33, 35, 41	SC007-63	Resistor, carbon 100KΩ ¼W	4		1
R4	SC007-64	Resistor, carbon 4.7KΩ ¼W	1		1
R5	SC007-52	Resistor, carbon 2.2MΩ ¼W	1		1
R6	SC007-68	Resistor, carbon 3.3MΩ ¼W	1		1
R7, 8, 15	SC007-53	Resistor, carbon 1.2MΩ ¼W	3		1
R9	SC007-80	Resistor, carbon 33Ω ¼W	1		1
R11	SC007-93	Resistor, carbon 22Ω ¼W	1		1
R12, 25	SC007-57	Resistor, carbon 1KΩ ¼W	2		1
R13	SC019-14	Resistor, metal oxide 5.6KΩ 1W	1	○	1
R14	SC019-11	Resistor, metal oxide 10KΩ 2W	1		1
R16	SC009-46	Resistor, carbon 33KΩ ¼W	1		1
R18	SC039-07	Resistor, carbon 180KΩ ¼W	1		1
R19, 20	SC007-86	Resistor, carbon 220Ω ¼W	2		1
R21	SC049-33	Resistor, carbon 39KΩ ¼W	1	○	1
R22	SC039-83	Resistor, carbon 68Ω ¼W	1	○	1
R23	SC039-06	Resistor, carbon 470KΩ ¼W	1		1
R24	SC009-47	Resistor, carbon 47KΩ ¼W	1		1
R26	SC039-99	Resistor, carbon 8.2KΩ ¼W ±1%	1	○	1
R27	SC039-90	Resistor, carbon 1KΩ ¼W ±1%	1		1
R28	SC049-34	Resistor, carbon 2KΩ ¼W	1	○	1
R29	SC007-98	Resistor, carbon 47Ω ½W	1	○	1
R30	SC039-57	Resistor, carbon 3.3KΩ ⅛W	1	○	1
R31	SC039-53	Resistor, carbon 27KΩ ⅛W	1	○	1
R32, 34	SC007-61	Resistor, carbon 15KΩ ¼W	2	○	1
R36	SC039-56	Resistor, carbon 560Ω ⅛W	1	○	1
R37	SC039-31	Resistor, carbon 1KΩ ⅛W	1		1
R38	SC039-71	Resistor, carbon 56KΩ ¼W	1		1
R39	SC019-16	Resistor, metal oxide 18Ω 1W	1	○	1
R42, 43	SC007-78	Resistor, carbon 680Ω ¼W	2		1
R44, 46	SC015-41	Resistor, variable 100KΩ B1AA00B15	2		5
R45	SC015-73	Resistor, variable 50KΩ A1AA00B54	1		5
CAPACITOR					
C1	SC002-18	Capacitor, ceramic 300PF 500 WV	1		1
C2, 4	SC004-04	Capacitor, semiconductive 0.1μF 12 WV	2		1
C3	SC000-49	Capacitor, electrolytic 220μF 10 WV	1		5
C5	SS505-14	Capacitor, main 1600μF 350 WV	1	○	5
C6, 7	SC000-79	Capacitor, electrolytic 1μF 16 WV(K)	2		5
C8, 23	SC000-67	Capacitor, electrolytic 3.3μF 50 WV(K)	2		5
C9, 12, 14	SC101-57	Capacitor, MD 0.047μF (M35-II D)	3		5
C10	SC101-51	Capacitor, MD 0.033μF (M35-II D)	1	○	5
C11	SC101-69	Capacitor, MD 0.068μF (M35-II D)	1		5

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks	I.G.P.Q'ty
C13	SC101-43	Capacitor, MD 3.3 μ F (K35-I T)	1		5
C15	SC000-65	Capacitor, electrolytic 4.7 μ F 50 WV(K)	1	○	5
C16	SC101-11	Capacitor, TF 0.047 μ F (J05-II D)	1		5
C17,20	SC004-01	Capacitor, semiconductive 0.05 μ F 12 WV	2		1
C18	SC103-18	Capacitor, TF 0.056 μ F (J05-II D)	1		5
C19	SC103-19	Capacitor, TF 1 μ F (J05-II D)	1		5
C21	SC000-85	Capacitor, electrolytic 1000 μ F 10 WV	1	○	5
C22,24	SC000-47	Capacitor, electrolytic 10 μ F 16 WV(K)	2		5
C25	SC002-02	Capacitor, ceramic 200 PF 500 WV	1		1
C-R COMBINATION					
CR1	SC031-08	C-R combination 680 Ω /3300 PF	1		1
DIODE					
D1	SC005-31	Diode 1R-150	1		5
D2,13	SC005-05	Diode 10D-8	2		5
D4,6	SC006-26	Diode, zener MZ-303	2		5
D5	SC006-11	Diode, zener MZ-306	1		5
D7	SC005-60	Diode 11DQ-02	1		5
D8,14,15,16	SC005-59	Diode 20A99	4		5
D9	SC006-24	Diode, zener MZ-304	1		5
D10	SC005-48	Diode MA-150	1		5
D11,12	SC005-04	Diode 10D-1	2		5
D17	SC006-29	Diode, zener RD3.3EB1	1		5
D18	SC025-30	LED LN29RPP	1		5
D19	SC025-31	LED LN39GPP	1		5
TRANSISTOR & SCR					
Q1	SC003-69	Transistor 2SB936A	1	○	10
Q2,3,7	SC003-49	Transistor 2SA1115	3		10
Q4,5,6,8	SC003-50	Transistor 2SC2603	4		10
Q9	SS512-13	Photo-transistor PN-123 S	1		5
SCR1	SC023-04	SCR CR02AM-8	1		5
SCR2	SC023-31	SCR CR3JM-8	1		5
SCR3	SC023-32	SCR CR3CM-8	1		5
TRANSFORMER, COIL & INDUCTOR					
T1	SS516-04	Transformer, OSC 1938 S	1	○	5
T2	SS508-32	Coil, trigger SN-900	1		5
L1	SC021-13	Inductor 321 L1	1		1
LCD, TUBE, BUZZER & SWITCH					
LCDM1	SS514-59	LCD module IM-904	1	○	5
FT1	SS500-85	Tube, xenon D-4040 BL	1	○	10
BZ1	SS518-10	Buzzer PKM35-4AO	1		5
SW1	SC300-46	Switch, slide SKM-24-045 P	1		5
SW2	SC300-47	Switch, slide SKM-26-045 P	1		5
SW3	SC301-08	Switch, push PS135A22 S	1	○	5
SW4,7	SC304-13	Switch, leaf MSW-1425	2	○	5
SW5,6	SC304-14	Switch, leaf MSW-1424	2	○	5
ASSEMBLIES					
62	SS303-31	Printed circuit board (A) assembly	1	○	1
63	SS303-32	Printed circuit board (B) assembly	1	○	1
64	SS303-33	Printed circuit board (C) assembly	1	○	1
65	SS305-52	Printed circuit board unit	1	○	1
66	SA101-02	Clamp assembly	1		1
67	SS145-12	Clamp band assembly	1		1
68	SS142-56	Bracket assembly	1		1

- Notes:** 1. The printed circuit board assemblies of Ref. No. 62, 63, 64 and 65 will be supplied till the day, three months before discontinuation date of production of the flash unit Model PE-381SG.
2. The assemblies of Ref. No. 66, 67 and 68 will be available to supply for only one year after discontinuation of the flash unit Model PE-381SG.